

**ABSTRACT OF THE INVENTION**

In methods for screening treatments for, and treatment of, neurodegenerative diseases, aggregation in neurons of NACP/ $\alpha$ -synuclein is measured and expression of a non-amyloidogenic protein is stimulated  
5 in order to reduce the level aggregation. For purposes of screening agents for treatment of neurodegenerative disease, oxidative stress in the neuronal cells is stimulated by introducing a mixture of metal-ions and hydrogen peroxide. Examples of appropriate metals include iron, aluminum, and copper. After introduction of the agent under evaluation  
10 for stimulation of expression of non-amyloidogenic protein, the effectiveness is measured by testing for a decrease in the level of aggregation of NACP/ $\alpha$ -synuclein. In an exemplary embodiment, the non-amyloidogenic protein is  $\beta$ -synuclein. The aggregation of NACP/ $\alpha$ -synuclein is dependent upon the concentration of metal ions in the  
15 neuronal cells. In addition, the presence of chelating agents appears to modulate the build-up of NACP/ $\alpha$ -synuclein aggregates which are responsible for synaptic and neuronal dysfunction.